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REMARKS

The Office action of January 3, 2007, has been carefully considered.

Claim 9 has been rejected under 35 USC 102(b) as anticipated by Dong et al. Claim 9 has been canceled, and withdrawal of this rejection is requested.

Claims 1, 3 and 5-6 have been rejected under 35 USC 103(a) over Dong et al.

Claim 1 has now been amended to better define the invention. In particular, the invention is now directed to a method for improving fatigue strength of a titanium part, as discussed in the present specification in paragraphs [0033] through [0049] of the application as published. The invention includes the steps of correlating the hardness of a hard oxide film against the thickness of the film to determine an effective thickness corresponding to a predetermined film hardness, correlating the hardness against the surface roughness to determine the effective surface roughness corresponding to the desired film hardness, and oxidation treating the surface of the parts under conditions of temperature and time such that the desired thickness and roughness are obtained. The effective thickness is defined as 14 micrometers or less, and the effective surface roughness Rz is defined as 3.0 micrometers or less. These steps are set forth in the specification as published in paragraphs [0062] through [0064].

Claim 3 has been canceled.

The Dong et al reference is concerned with improving the tribological properties of a titanium alloy article, not the fatigue strength. In order to improve the tribological properties, Dong et al teaches a range of 0.2 to 2 micrometers thickness for the oxide film. Below this thin surface layer,

Dong et al discloses the presence of an oxygen diffusion zone forming a hardened layer extending down to a depth of about 15 micrometers. The oxygen concentration of this diffusion zone is reduced with depth and Dong et al presents a graph plotting micro-hardness against distance from the surface in micrometers.

Dong et al does not, however, disclose or suggest that improvements in fatigue strength, and in particular a reduction in loss of fatigue strength during the oxidation treating of the article, can be obtained by correlating film hardness against surface roughness and against film thickness, and then selecting an effective thickness and surface roughness corresponding to a desired film hardness.

The present specification notes in paragraph [0048] as published that reduction of fatigue strength can be held to less than 20% according to the invention, and this is now recited in new Claim 10.

Thus, Dong et al teaches an oxide coating of 0.2 to 2 micrometers for a different purpose than the claimed invention, and does not disclose or suggest the specific method steps as claimed for improving fatigue strength of a titanium alloy part.

Withdrawal of this rejection is requested.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,

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